SEMINAR ANNOUNCEMENT

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Area: Communications and Networks (CN)

Host: Prof Zhang Rui

Co-Sponsor: IEEE Communications Society Singapore Chapter

TOPIC	:	**Wireless Digital Twins for AI-Native Wireless Networks**
SPEAKER	:	**Seungnyun Kim** **Assistant Professor, Singapore University of Technology and Design**
DATE	:	**Tuesday, 17 November 2026**
TIME	:	**3:00PM-4:00PM**
VENUE	:	**EA-06-04**

ABSTRACT

Emerging physical AI applications, such as networked robots and intelligent agents, require reliable and low-latency wireless communication to support distributed AI inference and real-time control. However, robot mobility and dynamic environments continuously reshape wireless propagation conditions, making conventional reactive network operations inadequate for ensuring reliable connectivity. Wireless digital twins (WDTs) offer a promising solution by integrating site-specific propagation knowledge, multimodal sensing, and AI to predict future wireless conditions and enable proactive network control. In this talk, I will introduce key methodologies for constructing efficient and adaptive WDTs, including propagation path estimation, semantic channel representations, and dynamic environment modeling. I will also highlight their applications to proactive RAN control, robust sensing, as well as joint network and robot control for AI-native wireless networks.

BIOGRAPHY

Seungnyun Kim is an Assistant Professor at the Singapore University of Technology and Design (SUTD). Prior to joining SUTD, he was a Postdoctoral at the Massachusetts Institute of Technology (MIT). He received the BS (Hons.) and PhD degrees in Electrical and Computer Engineering from Seoul National University (SNU), South Korea, in 2016 and 2023, respectively. His research focuses on 6G and beyond wireless networks, encompassing information theory, optimization methods, and artificial intelligence (AI) techniques, with applications to AI-native radio access network (RAN), integrated sensing and communications (ISAC), and non-terrestrial networks (NTN). He was a recipient of the Paper of the Year Award from IEEE Journal of Communications and Networks in 2025, the Sejong Science Fellowship from Korean Government in 2023, the Best PhD Dissertation Award from SNU in 2023, the Qualcomm Innovation Fellowship Finalist in 2021, and the Samsung Humantech Paper Award Gold Prize in 2019.

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